

Assuring Quality Care for Animals

Youth Food Animal Quality Assurance
Curriculum Guide

*GPP #5: Follow Proper Feed Processing
Protocols*

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THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES



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Introduction

Assuring Quality Care for Animals is a complement to the *Youth Food Animal Quality Assurance Curriculum Guide* reflecting the changes in the Good Production Practices. PowerPoint presentations complement each section to assist with instruction.

Using information in this resource should help youth understand how to provide a safe, wholesome food animal product preferred by consumers.

Note – this curriculum alone does NOT certify youth for state-mandated quality assurance training. A County Coordinator or Assistant Instructor must certify youth.

Additional resources and templates referenced in this document may be found at:

<https://www.pork.org/pqa-plus-certification/>

GPP #5

Follow Proper Feed Processing Protocols

Protecting the health of an animal and the quality of consumer products starts with selecting and feeding high quality feeds. What an animal eats will affect growth, health, economic return and food safety. Accidental contamination or mistakes made while mixing feeds can cause health problems in animals. These contaminants could also be found in the meat, milk, or egg products, thereby exposing the chemical to consumers.

Only purchase feed with a Guaranteed Analysis listed on the feed tag. For ruminants (beef, dairy, sheep and goats), ruminant-derived protein feeds are NOT allowed to be fed under current federal law. Obtain a Feed Suppliers Confirmation Form, which is a form from your feed supplier that says no ruminant proteins are in the product you will be feeding. Keep this form on file in case you need it.

To produce a high quality product and prevent contamination, proper feed processing and feeding practices should be followed. It is important for youth to have an awareness of proper hygiene when handling feed, techniques for mixing and using both medicated and non-medicated feeds, proper labeling, and recordkeeping practices.

Learning Objectives

Upon completing this lesson, youth should be able to

1. Know the proper feed processing protocols.

Key Terms

Current Good Manufacturing Practices (cGMPs). A set of guidelines for processing medicated feed

Non-Medicated cGMPs. Practices for non-medicated feed

Medicated cGMPs. Practices for medicated feed

Medicated Feed and Current Good Manufacturing Practices (cGMPs)

1. A set of guidelines for processing medicated feed, referred to as current Good Manufacturing Practices (cGMPs), is designed to (1) prevent feed contamination and (2) to provide reasonable assurance the medicated feed is manufactured accurately.
2. The cGMPs must be followed to help ensure safe, wholesome meat for human consumption.
3. Current Good Manufacturing Practices provide standards for
 - a. Buildings and grounds
 - b. Equipment
 - c. Workspace and storage areas
 - d. Product quality assurance
 - e. Labeling
 - f. Recordkeeping
4. Each standard is set to assure the medicated feed products are suitable for feeding livestock intended for human consumption.

Non-Medicated cGMPs

1. *Buildings and Grounds*
 - a. Prevent accumulation of dust that could contaminate finished feeds and present a fire hazard.
 - b. Construct premises to ensure access to preventative maintenance ease of operation, maintenance, cleaning, pest control and minimize feed contamination.
 - c. Ensure adequate space exists for equipment, processing and storing of feeds.
 - d. Employ inspection and control procedures to secure compliance with required standards for production, storage and transport of feed and feed ingredients.
2. *Equipment*
 - a. Check equipment to be sure it can produce feeds of intended nutritional levels, safety and purity.
 - b. Clean up spills, fix leaks in equipment and prevent build-up of feed ingredients.
 - c. Check scales to ensure they are accurate and functioning properly.
 1. Weigh feed properly and record on a clipboard.
 2. Put this information into records on the computer or all kept in one secure location.
 - d. Avoid contamination of equipment used to transport/store water.
 - e. Do not reuse bags used as packaging unless cleaned using appropriate and documented procedures.
 - f. Clean feed mixing and handling equipment between medicated and non-medicated feed usage.

- g. Minimize the potential for cross-contamination of feed during mixing.
- h. Minimize biological, chemical and physical risks by observing good animal feeding practices.

3. *Workspace and Storage*

- a. Design workspaces and storage areas to avoid accidental contamination of feed.
- b. If mixing medicated and non-medicated feeds at the same location, ensure that non-medicated feed work areas, equipment and storage areas are physically separated from medicated feed work areas.
- c. Keep feed work areas separated from equipment or storage used for herbicides, pesticides, fertilizers and ingredients not intended for inclusion in feeds.
- d. Properly label and store agricultural chemicals separately from feed mixing, feed storage, feed areas and feed ingredients.
- e. Store processed feed/feed ingredients separately from unprocessed feed ingredients.
- f. Utilize precautions to minimize spoilage and condensation and limit fungal and bacterial growth.
- h. Utilize pest control programs.

4. *Quality Control*

- a. Collect and test feed samples for composition and consistency. Consult with your feed supplier to administer these tests.
- b. Establish equipment cleanout procedures to prevent unsafe cross contamination of feeds or carryover of medicated feed products.
- c. Use pathogen-control procedures where appropriate.
- d. Provide correct feed to the right animal group, and follow directions for use.
- e. Water should meet hygienic standards.
- f. Avoid contamination of equipment, feed and feed ingredients when disposing of sewage, other waste and rainwater.
- g. Use appropriate feed hauling containers when going to a show.
 - 1. Make sure container is free of residue.
 - 2. Do not use an old feed sack.
- h. Feed contaminated with undesirable substances should be clearly marked, not used, and discarded appropriately.

5. *Labeling*

- a. Non-medicated feeds should have a different label than medicated feeds.
- b. All premixed feeds should have a label that identifies content and provides directions for proper use.
- c. Outdated labels and labels no longer used should be discarded promptly.

6. *Recordkeeping*

- a. Visually inspect received feed ingredients for quality or defects.
- b. Written records that contain the (1) delivery date, (2) method, (3) carrier and (4) any observations about color, weight or other quality measurements will be very useful if a question of feed quality or contamination is ever raised.
- c. Samples of ingredients and finished feeds should be taken, identified appropriately and stored for six months.
- d. Keep feed inventory records so you can both trace back and trace forward each batch of ingredients to the group of animals that consumed the feed.
- e. Maintain records regarding production, distribution and use of feed and feed ingredients.
- f. Voluntary recalls of feed/feed ingredients should be guided by FDA procedures or appropriate corrective actions.
- g. Keep feed records for one (1) year for swine, sheep, goats, and poultry; and two (2) years for beef and dairy after the animal(s) are marketed.

7. *Caretaker (youth exhibitor, parent, guardian, producer, etc.)*

- a. Observe proper hygiene to minimize potential hazards to food safety from feed.
- b. Provide training for all caretakers involved in manufacture, storing and handling of feed and feed ingredients.
 1. Document this training

Medicated cGMPs – Special Requirements

In addition to the cGMPs listed above for general feed manufacturing, there are special requirements for use when manufacturing medicated feeds. It is critical to follow these special requirements to ensure your animals receive proper dosages of medication and that proper withdrawal times are adhered to.

When manufacturing or mixing medicated feed, it is critical the feed contains the proper concentration of medication. Too low of a concentration may not have the desired effect on an animal. Too high of a concentration may cause negative health effects or excessive residues that last beyond the labeled withdrawal times.

Remember that extra-label use of medicated feeds is ILLEGAL, so it is important that your feeds are mixed properly and accurately.

Special Requirements

1. Medication

- a. Comply with federal residue levels for feed.
- b. Assess feed additives and veterinary drugs used in medicated feeds for safety.
- c. Identify animals receiving medicated feeds.
- d. It is imperative the required withdrawal time is followed for animals receiving medicated feeds!

2. Equipment
 - a. Clean feed milling and handling equipment between medicated and non-medicated feed.
 1. Use a RED feed scoop for medicated feeds.
 - a. The idea of “red” means to stop and think – “Is there medication in this feed?”
 2. Use a green feed scoop (or color other than red) for non-medicated feeds.
 - b. Clean storage and feeding equipment used for medicated feed after use if a different feed is to be used next.
3. Workspace and Storage
 - a. Ensure feed work areas, equipment and storage areas for animal drugs and manufactured feeds are physically separated from other work areas.
 - b. Use inventory practices to minimize risk of contamination.
4. Quality Control
 - a. Practice proper hygiene to reduce the risk of cross contamination of non-medicated feeds by medicated feeds.
 - b. Train all caretakers to properly mix, handle and store feed to minimize possible cross contamination.
 - c. Establish equipment cleanout procedures (includes storage containers, feed scoops and feeders) to prevent unsafe cross contamination of feeds, or carryover of medicated feed products.
 - d. Ensure storage containers, scoops and feeders are free of contamination from medicated feeds and contaminated feeds.
 - e. Provide the correct medicated feed to the right animal(s).
 - f. Follow directions for use of the medicated feed.
 - g. Clearly mark any medicated feed contaminated with undesirable substances, do not use and discard appropriately.
 - h. Minimize the potential for cross-contamination of feed during mixing.
 - i. Observe good animal feeding practices that minimize biological, chemical and physical risks.
5. Labeling
 - a. Receive, handle and store medications and their labels in a way that prevents confusion.
 - b. All medicated feeds should be labeled, describing the feed and providing instructions for use.
 - c. Attach the correct label to all medicated feed containers you receive or store.
 - d. The label should identify the product and contents, and provide directions about use and withdrawal times.
 - e. Promptly discard obsolete labels.

6. Recordkeeping
 - a. Visually inspect received feed ingredients for quality or defects.
 - b. Keep written records that contain the delivery date, method, carrier and any observations about color, weight or other quality measurements.
 1. This is very useful should a question of feed quality or contamination ever arise.
 - c. Keep written records of medicated feed production.
 - d. Keep feed records for one (1) year for swine, sheep, goats, and poultry; and two (2) years for beef and dairy after the animals are marketed.
 - e. Record any medicated feeds give to exhibition animals on your Drug Use Notification Form (DUNF)

Feed Additives

1. Substances added to feed rations to improve feed efficiency, promote growth or to prevent or treat disease.
 - a. Accurately calculate dosage.
 1. Is each animal receiving the same dose?
 2. Calculate dosage for the average weight or average feed intake for the pen of animals according to the label.
 - b. Read label carefully.
 - c. For FDA-regulated feed additives answer the following
 1. Is the feed additive approved for the species?
 2. Is the feed additive approved at the level being fed?
 3. Can the feed additive be fed to label directions?
 - d. For non-FDA-regulated feed additives
 1. What is the appropriate level to feed?
 2. Will too much feed additive have negative consequences?
 3. What information or data supports the claim of the product?
 - e. Licenses veterinarians, feed manufacturers and producers may order, produce or use drugs in medicated feeds only if the following conditions are met
 1. The drug is approved by the Food and Drug Administration (FDA)
 2. The drug is used in the manner for which it was labeled and approved
 3. As provided by FDA feed mill license, where applicable
 - f. Cautions
 1. Avoid top dressing additives unless specifically labeled.
 2. There can be TOO much of a good thing!
 3. Paylean[®]/Optablexx[®] (ractopamine)
 - a. Do not restrict water access or intake.
 - b. Follow appropriate label dosage.
 - c. Only feed to FDA-approved species.
 - g. Antimicrobial/Antibiotics
 1. Use preventive strategies, such as vaccinations and sanitation, to avoid overuse.
 2. Consider alternatives before using antimicrobial therapy.
 3. Limit treatment to ill or at-risk animals, treating the fewest animals possible.
 4. Provide following the label instructions.

Reading a Feed Product Label

Feed labels are regulated by USDA unless medications are added. The FDA is the regulatory agency for medicated feed labels. Labels must appear on all commercial feeds and ingredients.

The feed label will be in this format:

Brand and/or Product Name

Intended Species and Production Phase

Medicated Statement – must appear below product name if medication is used, as well as a statement of purpose for the medication, which is followed by a listing of active ingredients with their amounts.

Guaranteed Analysis – required, followed by a listing of nutrient analyses required for the product and species; must list “not less than (minimum) or not more than (maximum)” depending on the nutrient

Ingredients – listing of each ingredient in order from highest to lowest concentration

Feeding Directions or Mixing Directions – instructions for feeding or mixing the product

Warning or Caution Statement – includes medication used and withdrawal time; provides instructions with statement

Manufacturer’s Name and Address

Net Weight – indicates the weight of the product

Read the feed label before feeding your animals! Know the age and type of animal being fed and its nutrient needs, which may change throughout its life cycle. Look closely to see if there is an active drug ingredient and what the withdrawal time is.

Refer to the sample medicated feed tag on the next page.

Example 1 – Medicated Feed



2099MEC

**KALMBACH
TARGET WEAN FIVE+
S.E.W. FORMULA ONE**

Medicated

A complete swine starter feed formulated for control of swine dysentery (vibriotic dysentery, bloody scours or hemorrhagic dysentery); control of bacterial swine enteritis (salmonellosis or necrotic enteritis caused by *Salmonella choleraesuis*); for increased rate of weight gain and improved feed efficiency.

Active Drug Ingredients 50 g/ton

Guaranteed Analysis	
Crude Protein (Min.)	23.0%
Lysine (Min.)	1.8%
Crude Fat (Min.)	5.0%
Crude Fiber (Max.)	2%
Calcium (Ca) (Min.)	0.80%
Calcium (Ca) (Max.)	0.95%
Phosphorus (P) (Min.)	0.7%
Salt (NaCl) (Min.)	1.25%
Salt (NaCl) (Max.)	1.75%
Selenium (Se) (Min.)	2,500 ppm
Zinc (Zn) (Min.)	2,500 ppm

Ingredients

Feeding Oatsmeal, Dried Whey, Plant Protein Products, Dried Skim Milk, Spray Dried Animal Plasma, Grain Products, Lactose, Fish Meal, Animal and Vegetable Fat, Dicalcium Phosphate, Monocalcium Phosphate, Calcium Carbonate, dl-Methionine, L-Lysine, Choline Chloride, Vitamin A Supplement, Vitamin E Supplement, Artificial Sweetener and Flavor, D-Activated Animal Sterol (Source of Vitamin D-3), Niacin, Vitamin B-12 Supplement, Riboflavin, d-Calcium Pantothenate, Ethoxyquin (a preservative), Menadione Sodium Bisulfite Complex (Source of Vitamin K Activity), d-Biotin, Folic Acid, Bacillus licheniformis, Bacillus subtilis, Thiamine Mononitrate, Pyridoxine Hydrochloride, Zinc Sulfate, Zinc Oxide, Ferrous Sulfate, Manganese Sulfate, Copper Sulfate, Erythrodiamine Dihydrochloride, Cobalt Sulfate, Selenium Yeast, and Sodium Selenite

WARNING
Do not feed to swine within 42 days before slaughter. Not for use in pregnant swine or swine intended for breeding purposes.

CAUTION: Do not use in feeds containing *bestorite*.

Feeding Directions
Feed during the initial 7 days after weaning to pigs that weigh 5 to 10 lbs. at 10 to 16 days of age.



Manufactured by
KALMBACH FEEDS, INC.
UPPER SANDUSKY, OHIO 43351
Net Weight - 50 LBS. (22.7 Kg.) - BULK - Shown on Invoice

311320-277-1

M. Net weight of package.

* **AAFCO** = Association of American Feed Control Officials. This organization sets standard guidelines for all feed companies to follow for labeling products.

A. Our lot number - important tracking information.

B. Our product code – use for ordering.

C. Name or Title of Product.

D. Indicates this product is a medicated feed.

E. Purpose statement: species, class, medication reason, etc.

F. Type and amount of medication.

G. Nutritional Guarantees – minimum and/or maximum values that the product must meet if tested by approved laboratory methods.

H. Ingredients in the feed. Can be listed as individual ingredients or collective terms for a group of AAFCO* approved ingredients.

I. **Warning and caution statements** are required by the FDA. Withdrawal or unsafe feeding instructions are listed here. *This feed has a 42 day withdrawal.*

J. Recommended feeding directions for this product.

K. Manufacturer responsible for feed.

L. KFI code for internal use only.

Follow Proper Feed Processing Protocols Study Questions

1. What are the set of guidelines or standards for processing medicated feed called?
2. Name the five categories current Good Manufacturing Practices (cGMPs) set standards for.
3. The goal of feed manufacturing is to produce feeds that _____. Name three.
4. Name three cGMPs, and tell how they can be done on your farm.
5. Name one cGMP that you hope to implement on your farm in 2015.
6. When mixing medicated feeds you can get one of three results. The medication level in the feed can be just right, too low, or too high. Name one possible result of a medication level being too high. Name one result of a medication level being too low.
7. Discuss why there are special requirements for use when manufacturing medicated feeds.
8. Name the nine (9) categories that must be listed on a medicated feed label.
9. What are two ways to identify you have the correct storage container that contains medicated feed?
10. Discuss why it is important to keep feed inventory records.

Non-Medicated Feed Label

50 Lbs. Net Wt. 22.7 Kg.



BUCKEYE 14% GOLD'N GROWER

GUARANTEED ANALYSIS

Crude Protein, Minimum	14.00%
Crude Fat, Minimum	4.00%
Crude Fiber, Maximum	12.00%
Acid Detergent Fiber, Maximum	17.00%
Calcium (Ca), Minimum	0.40% Max. 0.90%
Phosphorus (P), Minimum	0.40%
Salt (NaCl), Minimum	0.20% Maximum 0.70%
Potassium (K), Minimum	0.80%
Magnesium (Mg), Minimum	0.20%
Selenium (Se), Minimum	0.30 ppm
Vitamin A, Minimum	5,000 IU/lb.
Vitamin D-3, Minimum	1000 IU/lb.

INGREDIENTS

Heat Processed Corn, Heat Processed Oats, Heat Processed Barley, Cottonseed Hulls, Cracked Corn, Soybean Meal, Whole Cottonseed, Wheat Middlings, Cane Molasses, Soybean Oil, Calcium Carbonate, Calcium Phosphate, Salt, Potassium Chloride, Potassium Sulfate, Magnesium Oxide, Magnesium Sulfate, Manganese Oxide, Ferrous Carbonate, Copper Sulfate, Zinc Oxide, Ethylenediamine Dihydrochloride, Cobalt Carbonate, Sodium Selenate, Vitamin A Supplement, Vitamin D-3 Supplement, Vitamin E Supplement, 12/97

Feeding Directions: Feed Buckeye 14% Gold'N Grower to growing show calves. Gold'N Grower is recommended to be fed at 2.25% of body weight. Due to the levels of excellent fiber in the pellet, only about 4 to 6 pounds of hay per day needs to be fed. Feed Gold'N Grower up to about 800 lb. of body weight, or whenever you want the calf to start the conditioning/finishing phase and when less structural growth is desired. At this time it is recommended that the grower ration be switched to Buckeye 12% Gold'N Conditioner/Finisher. Free Choice Buckeye T.M. Salt with Selenium and Buckeye 20:10 Mineral. Maintain a clean fresh supply of water.

BUCKEYE FEED MILLS
DALTON, OHIO 44618

Medicated Feed Label



4300

KALMBACH BREEDER PRESTARTER CRUMBLE

Formulated for Prestarter Breeder Turkeys

Medicated

For the prevention of coccidiosis caused by Eimeria meleagridis, Eimeria gallopavonis and Eimeria adenocoides in growing turkeys.

Active Drug Ingredient

Lasalocid 81 g/ton

Guaranteed Analysis

Crude Protein (Min.)	27.5%
Lysine (Min.)	1.7%
Methionine (Min.)	0.72%
Crude Fat (Min.)	3.0%
Crude Fiber (Max.)	5.0%
Calcium (Ca) (Min.)	1.25%
Calcium (Ca) (Max.)	1.75%
Phosphorus (P) (Min.)	0.7%
Salt (NaCl) 9M (Min.)	0.25%
Salt (NaCl) (Max.)	0.5%
Sodium (Na) (Min.)	0.10%
Sodium (Na) (Max.)	0.20%

Ingredients

Grain Products, Plant Protein Products, Processed Grain By-Products, Animal and Vegetable Fat, Salt, Iron Oxide, Dicalcium and Monocalcium Phosphate, Calcium Carbonate, dl-Methionine, L-Lysine, Sodium Bicarbonate, Choline Chloride, Vitamin A Supplement, Vitamin E Supplement, D-Activated Animal Sterol (Source of Vitamin D-3), Niacin, Vitamin B-12 Supplement, Riboflavin, d-Calcium Pantothenate, Ethoxyquin (a preservative), Menadione Dimethylpyrimidinol Bisulfite (Source of Vitamin K Activity), d-Biotin, Folic Acid, Thiamine Mononitrate, Pyridoxine Hydrochloride, Zinc Sulfate, Ferrous Sulfate, Manganese Sulfate, Copper Sulfate, Ethylene Diamine Dihydrochloride, Cobalt Sulfate, and Sodium Selenite.

Feeding Directions

Feed to growing turkey breeders from the ages of 0-4 weeks of age.

LIMITATIONS FOR USE: Feed continuously as sole ration.

Manufactured by

KALMBACH FEEDS, INC.
UPPER SANDUSKY, OHIO 43351

Net Weight - 50 LBS. (22.7 Kg.) - BULK - Shown on Invoice

793001